REMARKS

The Examiner restricted Applicants to either the invention of claims 1-30 or the invention of claim 31. Applicants hereby affirm the earlier election to have examination proceed on the invention of claims 1-30. The Examiner also indicated that, in order to preserve the right to rejoin claim 31 after an indication of allowability of a device claim, claim 31 should be amended during prosecution to incorporate the limitations of a device claim. Claim 31 is hereby amended in compliance with the Examiner's observation.

The Examiner rejected claims 1-22 for obviousness-type double patenting. The Examiner cited claims 1-20 of Schulz Van Endert U. S. Patent 7,259,227 (hereinafter Schulz Van Endert I) to support this rejection. Claim 1, the only independent claim, of Schulz Van Endert I recites, *inter alia*, that

> the at least one tower reactor [is] configured as follows: in the lower third, the tower reactor is configured in the form of a hydrocyclone with attached heat exchanger and has a supply line for the at least one of paste, suspension and liquid raw material mixture, the hydrocyclone is connected via a pressure pipe to the top side of the tower reactor; the top side of the tower reactor is configured in the form of a downflow cascade; the cascade is in communication via a pipe with the central part of the tower reactor which is configured in the form of one of a single-stage and a multiple-stage falling-film zone with preliminary pressure reduction.

Thus, the Schulz Van Endert I claims claim a tower reactor which is built upside down from the tower reactor of the present claims in which, *inter alia*,

> in the upper third, the tower reactor is configured in the form of a hydrocyclone * * * , the region of the tower reactor below the hydrocyclone is configured in the form of a downflow cascade, [and] the cascade is via a pipe in connection with the lower part of the tower reactor which is configured in the form of a single- or multiple-stage falling-film zone with a preliminary pressure reduction.

There is no disclosure or suggestion, either in Schulz Van Endert I, or anywhere else in the art of record to which the Examiner has directed Applicants, for the desirability of building the tower reactor "upside down." In assessing patentability, either from a novelty standpoint or an obviousness standpoint (including obviousness-type double patenting), it is clear that

> "[t]he question is not whether a patentable distinction is created by viewing a prior art apparatus from one direction and a claimed apparatus from another, but, rather, whether it would have been obvious from a fair reading of the prior art reference

> as a whole to turn the prior art apparatus upside down. [The prior art reference in this case] teaches a liquid strainer which relies, at least in part, upon the assistance of gravity to separate undesired dirt and water from gasoline and other light oils. Therefore, it is not seen that [the prior art reference] would have provided any motivation to one of ordinary skill in the art to employ the [the prior art reference] apparatus in an upside down orientation. The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification. See Carl Schenck, A.G. v. Nortron Corp., 713 F.2d 782, 787, 218 USPQ 698, 702 (Fed.Cir.1983), and In re Sernaker, 702 F.2d 989, 995-96, 217 USPQ 1, 6-7 (Fed.Cir.1983), both citing In re Imperato, 486 F.2d 585, 587, 179 USPQ 730, 732 (CCPA 1973).
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> "Indeed, if the [prior art reference] apparatus were turned upside down, it would be rendered inoperable for its intended purpose. The gasoline to be filtered would be trapped in pocket 9, and the water [the prior art reference] seeks to separate would flow freely out of the outlet 5. Further, unwanted dirt would build up in the space between the wall of shell 1 and screen 21, so that, in time, screen 21 would become clogged unless a drain valve, such as pet-cock 13, were re-introduced at the new 'bottom' of the apparatus. See In re Schulpen, 390 F.2d 1009, 1013, 157 USPQ 52, 55 (CCPA 1968). In effect, [the prior art reference] teaches away from the board's proposed modification.
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> "Because the PTO has failed to establish a *prima facie* case of obviousness, the rejection of claims 1-3 and 5-7 as unpatentable under 35 U.S.C. § 103 must be reversed." In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125 (Fed. Cir. 1984).

The rejection based upon obviousness-type double patenting is thus overcome.

The Examiner rejected claim 30 under 35 U. S. C. § 112, second paragraph. The Examiner pointed out a specific instance of indefiniteness. That specific instance of indefiniteness has been addressed by an amendment contained herein.

The Examiner rejected claims 1-5, 7-11, 13-15 and 18-22 under 35 U. S. C. § 102. The Examiner relied upon Schulz Van Endert published PCT application WO 2003/042278 (hereinafter Schulz Van Endert II, the English language equivalent of which is Schulz Van Endert I) to support this rejection. However, and as noted above, the tower reactor in Schulz Van Endert II is constructed in the following manner: in the lower portion, the tower reactor is configured in the form of a hydrocyclone with an attached heat exchanger and a supply line for the paste, suspension and/or liquid raw material mixture. The hydrocyclone is connected via a pressure pipe to the top side of the tower reactor. The top

side of the tower reactor is thereby configured in the form of a downflow cascade. The cascade is connected via a suitable inlet pipe to the central part of the tower reactor which is configured in the form of a single- or multiple-stage falling-film zone with initial pressure reduction.

In contrast, the tower reactor of the present claims is constructed as follows: in the upper third, the tower reactor is configured in the form of a hydrocyclone with an attached heat exchanger and a supply line for the paste, suspension and/or liquid raw material mixture. The region of the tower reactor below the hydrocyclone is configured in the form of a downflow cascade. This cascade is connected via a suitable inlet pipe to the lower part of the tower reactor which is configured in the form of a single- or multiple-stage falling-film zone with initial pressure reduction.

The three reaction zones, namely, a hydrocyclone, a downflow cascade and a single- or multiple-stage falling-film zone are integrated in completely different ways in the tower reactor of Schulz Van Endert II and the present claims. Thus it is clear that the tower reactor of the present claims distinguishes patentably over the tower reactor of Schulz Van Endert II. These patentable distinctions are reflected in the fact that the tower reactor of the present claims may be run as gravimetric (downflow) reactor, as opposed to Schulz Van Endert II, which is operated as a forced flow cascade.

The Examiner rejected claims 6, 12, 16, 17, 23, 28 and 29 under 35 U. S. C. § 103. The Examiner relied upon Schulz Van Endert II to support this rejection. However, as noted above, the tower reactor of the present claims is constructed as follows: in the upper third, the tower reactor is configured in the form of a hydrocyclone with an attached heat exchanger and a supply line for the paste, suspension and/or liquid raw material mixture. The region of the tower reactor below the hydrocyclone is configured in the form of a downflow cascade. This cascade is connected via a suitable inlet pipe to the lower part of the tower reactor which is configured in the form of a single- or multiple-stage falling-film zone with initial pressure reduction.

The three reaction zones, namely, a hydrocyclone, a downflow cascade and a single- or multiple-stage falling-film zone are integrated in completely different ways in the tower reactor of Schulz Van Endert II and the present claims. There is no disclosure, nor is there any suggestion, in Schulz Van Endert II of the desirability of constructing the Schulz Van Endert II tower reactor "upside down." And, as noted in In re Gordon, *supra.*, "[t]he question is not whether a patentable distinction is created by viewing a prior art apparatus from one direction and a claimed apparatus from another, but, rather, whether it would have

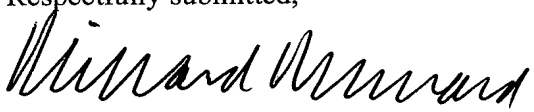
been obvious from a fair reading of the prior art reference as a whole to turn the prior art apparatus upside down." In this case, it would not have been obvious to do so based upon Schulz Van Endert II. Thus it is clear that the tower reactor of the present claims distinguishes patentably over the tower reactor of Schulz Van Endert II. These patentable distinctions are reflected in the fact that the tower reactor of the present claims may be run as gravimetric (downflow) reactor, as opposed to Schulz Van Endert II, which is operated as a forced flow cascade.

Therefore, Applicant believes that the tower reactor according to the present claims distinguishes patentably over the tower reactor taught by Schulz Van Endert II, and provides various processing advantages as described in the application over the tower reactor taught by Schulz Van Endert II.

Accordingly, Applicants submit that the claims, as amended, patentably distinguish over the art of record, and respectfully request further favorable action, culminating in allowance.

The Commissioner is hereby authorized to charge any fees which may be necessary to constitute this a timely response to the June 26, 2008 official action, to our undersigned counsel's deposit account 10-0435, with reference to file number 37317-79570.

Respectfully submitted,



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